September 16, 1968

MEMORANDUM TO MR. AUSTERN

Re: Survey of Smoking Habits

On September 9, 1968, a meeting was held at the Philip Morris Research Center in connection with the survey of smoking habits being undertaken by Philip Morris. The non-Philip Morris personnel present at this meeting were:

Dr. Robert B. Griffith, from Brown & Williamson;
Dr. Murray Senkus, from Reynolds;
Dr. Fred Schultz, from Lorillard;
and AJT.

There were eight employees of Philip Morris present at this meeting, all of whom are involved in some with the survey. The Philip Morris representatives were:

Dr. Robert B. Seligman, Director of Development;
Dr. William L. Dunn, Jr., overall control of the survey;
Mr. Myron E. Johnston, economist (selection of participants);
Mr. John E. Tindall, statistician;
Dr. Robert M. Ikeda, analytical chemist;
Mr. James L. Charles, analytical chemist;
Mr. Melvyn B. Cohen, logistics,
and Dr. P.A. Eichorn.

Dr. Dunn gave an oral presentation of the objectives of the survey and the procedures contemplated. Dr. Dunn used carefully prepared charts and diagrams, and called upon the other Philip Morris employees for specific information where needed in making this excellent presentation.

Dr. Dunn listed the following three objectives of the survey:

1. To determine the validity of several indices of smoke exposure, such as the number of cigarettes smoked a day.

2. To develop norms for various groups of smokers.

3. To generate a formula for more accurate yet practical estimation of smoke exposure for large scale studies.

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Dr. Dunn stated that because only four, and not five, companies had decided to participate in the study, the sample size would be reduced from the contemplated 3,000 to 2,700 panelists. (A panelist is the term employed for each respondent in the survey.) This reduction of survey size was intended to keep the cost within the estimated $80,000 limit. Dr. Dunn expects that the cost will exceed this figure, and that Philip Morris will assume the remainder of the costs.

The work to date is on schedule, and it is estimated that a final report will be available on January 15, 1969.

The 2,700 panelists are selected in the following manner. Philip Morris does its regular survey work under the name of "Product Opinion Laboratory" from a Richmond address which is different to the Philip Morris address. POL, as it is referred to, is staffed entirely by Philip Morris employees, but the name POL and the independent address are employed to prevent the panelists from knowing that the survey is being conducted by Philip Morris, which might otherwise bias the results. Several years ago POL developed a national list of panelists by selecting individuals randomly from telephone directories in cities and rural areas in the 50 states which had been randomly selected. Questionnaires were sent to each of these panelists asking about their consumption of various products such as cigarettes. From the response to these questionnaires POL developed a large number of panelists who have been used in various surveys. The list of panelists is supplemented from time to time as necessary.

In preparing for this survey of smoking habits, a sample of these panelists was selected who are filter smokers. If an individual selected lives in a household with other filter smokers, then all individuals in the household who are filter smokers will be respondents in this survey of smoking habits. A questionnaire has already been sent to each of the prospective panelists to obtain basic data as to the brand smoked and whether they would be interested in participating in this survey. A copy of the questionnaire is attached.

Philip Morris is presently mailing out, on a staggered basis, packages to each of the participating panelists. These packages include test instructions and pouches for the collection of cigarette butts. A copy of the instructions is attached to this memorandum. AJT has a package in

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his office. The panelists are not told that Philip Morris or a tobacco company is conducting this survey. The panelist is requested to give on each pouch an estimate of the number of cigarette butts not kept that day.

Before the panelist begins collecting cigarette butts he will be called from POL to make certain that all materials have arrived. POL has arranged for wide area service which provides unlimited outgoing long distance calls during the period required to contact all panelists. After the cigarette butts have been mailed to POL, the panelists will be sent a questionnaire asking general questions about their concern with the subject of smoking and health. These health questions are asked after the pouches have been forwarded in order to avoid any bias. Each panelist will then be paid $7.00 for participating in the survey.

While Philip Morris cannot be certain how conscientious each panelist will be, each panelist has expressed a desire to participate in this survey on two occasions.

The analytical division simultaneously has been determining the constant for each variety of cigarettes which is equal to the ratio of the nicotine to "tar" for the entire length of the cigarette. This division has also been establishing analytical procedures which can be used for prompt analysis of the cigarette butts.

Within the next week Philip Morris will prepare its proposal for the treatment of data. This proposal will then be forwarded to AJT, who is to distribute it promptly to each of the four companies. Each company must then telephone its comments on the proposed data treatment directly to Philip Morris. If there are conflicts, a meeting will be held. It is crucial that approval of the method for treating data be established by October 1 in order to avoid any delay in the survey.

In connection with the treatment of data, there was considerable discussion as to whether brand names should be masked by coding, and if so at what point in the survey. It was generally agreed that in order to avoid any company obtaining commercial advantage by utilizing survey results which are not statistically significant, a code should be employed. Possibly the code can be forwarded to C. & B. Each participating company agreed to consider this matter and to reach some decision before October 1.

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With regard to the treatment of butts, Philip Morris has devised the following procedures. First, all cigarette butts for one smoker for one day are placed in a tray and two butts are selected at random for butt length measurement. Thus the length of fourteen butts per smoker will be measured. A complicated procedure for selection is employed to insure that the selection is random. While this may permit some bias on the high side because there may be some extremely long butts, it is expected that this effect will be eliminated because of the large number of cigarette butts to be measured.

After selection of the two butts for length analysis, the remainder of the butts are counted and either five, ten or twenty butts are then sent for chemical nicotine analysis. The number selected is rounded off to the nearest five, ten or twenty. It is necessary that five, ten or twenty be employed to facilitate the chemical testing. Thus if only six butts are present five are sent for analysis. If twelve remain, ten are sent; and if 24 remain twenty are sent.

With regard to the mathematics, Dr. Dunn anticipates the calculation of Criterion C:

$$C = \frac{\sum \left[\frac{N_1 TR_1}{Ns_1} \cdots\cdots \frac{N_7 TR_7}{Ns_7} \right]}{7}$$

Where C = mean daily exposure to smoke (mg)

N_1 = number of cigarettes smoked on Day 1

T = calculated tar/nicotine residual for brand smoked

Ns_1 = number of cigarettes in Day 1 sample

R_1 = nicotine residual in Day 1 sample.

In the treatment of data, first tables of smoke exposure norms measuring the milligrams of tar per smoker per day will be prepared. Then the Criterion C will be correlated with all possible variables, including demographic data. A multiple regression equation will be prepared.

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Since each panelist has been asked at the beginning of the survey to estimate his smoke exposure based on the number of cigarettes smoked each day, it will be possible to test the validity of the smoker's estimate of the number of cigarettes smoked each day as a measure of his smoke exposure. It is likely that this validity index will be very low, i.e., little correlation. The survey may then suggest better measures of smoke exposure for use in future research.

The importance of the survey results in demonstrating the invalidity of the smoker's estimate of the number of cigarettes smoked each day as a measure of smoke exposure can be illustrated in the following manner. The Dorn study of veterans concluded the mortality due to lung cancer bears a linear relationship to the smoker's estimate of the number of cigarettes that he smokes each day. This Dorn data was relied upon by the Surgeon General. With data from the Philip Morris survey, it may be possible to challenge the validity of the Dorn conclusion by establishing that the smoker's estimate of the number of cigarettes smoked per day bears no relationship to the amount of "tar" delivered to the smoker. Even without this Philip Morris study it seems likely that measuring smoke exposure by the smoker's estimation of the number of cigarettes smoked a day involves several variables which shed doubt upon its validity. The following variables are relative to oral cavity intake:

1. The number of cigarettes actually smoked;
2. The smoker's rate of puffing;
3. The volume of the puff;
4. The butt length to which smoked;
5. The "tar" delivery of the brand smoked.

Other variables are relative to the lower respiratory tract exposure. These include:

1. The smoke/air dilution or inhalation;
2. The depth of inhalation;
3. The duration of inhalation;
4. The clearance.

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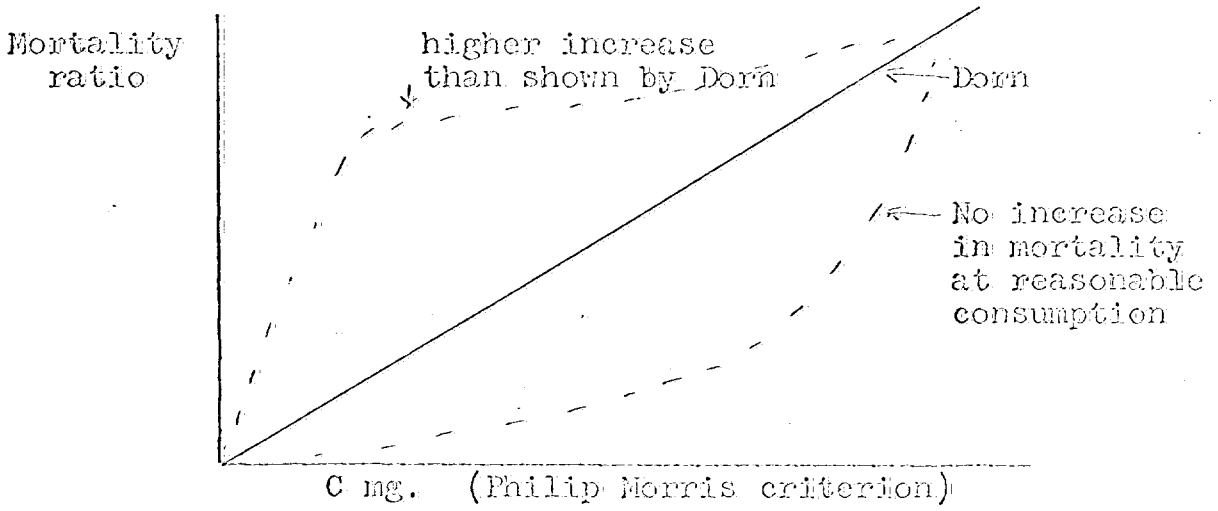
In addition, the smoker's history is another variable. A smoker smoking two packs a day for the last year has received less exposure than a smoker smoking one pack a day for 40 years.

If the Philip Morris study developed a better measure of smoke exposure, a future epidemiological study may establish that there is no increase in mortality due to cigarettes when cigarette consumption is at reasonable, but not excessive, amounts, and the industry could then make arguments similar to those advanced by the alcohol industry. At the same time it should be recognized that future work even using the Philip Morris measure of smoke exposure may support the Dorn linear relationship or might even establish a relationship more detrimental from the industry's point of view. The following graph illustrates these three possible alternatives:



All the points raised by HTA in connection with his review of the blue folder were discussed. On page 1 it was agreed that the word "the" in the last last of text should be "any." The last line of footnote 2 on page 1 should read, "in milligrams of 'tar' determined by the FTC method." On page 7, paragraph number 3 should include "smoking to 3 mm. beyond the filter overwrap as prescribed by the Commission methodology where necessary."

Dr. Dunn stated that the FTC test results, as opposed to its methodology would not be used for any purposes. Instead where data is needed, it would be determined by Philip Morris testing in accordance with the data methodology.

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In all such smoking the Commission butt lengths would be employed (3 mm. beyond the overwrap where necessary in the case of filters). From this survey it may be possible to conclude that FTC "tar" is a very poor measure of the amount of "tar" actually received by a smoker; and FTC figures should therefore not be required on packages and in advertising.

AJT raised the question of whether the sample would be large enough to permit conclusions to be drawn as to subgroups, and specifically as to the difference in "tar" exposure of 100 mm. and 85 mm. smokers. The Philip Morris statistician explained that based upon the sample size employed, a 1 mg. difference between the exposure of 100 mm. smokers and 85 mm. smokers would be significant, i.e., if the 100 mm. smokers received more than 1 mg. of "tar" it would be possible to state that in the United States 100 mm. smokers get more tar than 85 mm. smokers. On the other hand, if the difference is less than 1 mg., it will not be possible to say that there is no difference between the "tar" exposure of 100 mm. smokers and 85 mm. smokers. However, it will be possible to state that this survey did not establish such a difference.

Dr. Griffith suggested that RTI be asked to rewrite its report on methodology in a manner suitable for publication in order that when the Philip Morris survey is completed, it will be possible to cite a published work by RTI on methodology. AJT suggested that in view of the present difficulties with RTI, and the overall RTI situation, too little would be gained in terms of influencing Congress by reason of an RTI publication to justify an approach to RTI relating to publication.

emf

Allan J. Topol

Enclosures

cc: Mr. Claggett (w/enc)
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